IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re application of Renee M. Kovales, et al.

Serial No.:   10/632,177

Filed: July 31, 2003

For: Selectable Audio and Mixed Background Sound for Voice Messaging System

Art Unit: 2614

Examiner: Hemant Shantilal Patel

DECLARATION OF FACT UNDER 37 C.F.R. §1.131

We, Renee M. Kovales, Edith H. Stern, and Barry E. Willner, hereby declare the following:

1)   We are co-inventors of the invention described and claimed in U. S. Patent Application

Number 10/632,177 (hereinafter, "the Subject Application"), entitled "Selectable Audio and

Mixed Background Sound for Voice Messaging System ", filed on July 31, 2003.

2)   We are also co-inventors of the invention described in claimed in U. S. Patent Application

Number 09/782,773 (hereinafter, "the Parent Application"), now U. S. Patent 7,003,083 B2, from

which the Subject Application claims priority. The Parent Application is also entitled "Selectable

Audio and Mixed Background Sound for Voice Messaging System" and was filed on February

13, 2001.

3)   We created an invention disclosure document (hereinafter, "Disclosure"), on which the

above-identified application is based, in this country before October 6, 2000. A copy of this

Disclosure is submitted herewith as "Exhibit A", and supporting information for the Disclosure is

submitted herewith as "Exhibit B" and "Exhibit C". The Disclosure in Exhibit A was created on

08/31/2000, as indicated in the rectangular box at the top of the first page (having heading

"Disclosure RSW 8-2000-0177", which is the disclosure identifier of the Parent Application), and

was submitted to our employer's Invention Development Team for review on 08/31/2000 (see

"Submitted date" under "Summary" on the first page). The invention was workable on

08/01/2000, as indicated in "Question 1" on Page 2 of the Disclosure. The supporting

information in Exhibit B was archived on 09/12/2000, as indicated in the rectangular box with

heading "Main Idea for Disclosure RSW 8-2000-0177". Further details of this supporting

information are provided in Exhibit C, which was also archived on 09/12/2000, as indicated in the

rectangular box with heading "Main Idea for Disclosure RSW 8-2000-0149". Note that Exhibit

B, as originally created, includes the supporting information in Exhibit C by reference thereto.

See "Main Idea", item 1, of Exhibit B, which states "Reference disclosure RSW8-2000-0149"

(i.e., the information presented herein as Exhibit C). See, in particular, the following portions of

Exhibit C: "Disambiguating topics: Leaving a message" on pages 1 - 2; "Preparing the message

for retrieval" on page 2; "Retrieving the message" on page 2; "Actions on partial voicemails" on

page 2; "Audio only messages" on page 3, and "User selected audio background" on page 3.

Portions of the Disclosure in Exhibit A and supporting information in Exhibits B and C, as

well as Exhibits D - R discussed below, may be redacted to remove information not necessary to

establish the invention's conception or reduction to practice.

Exhibit C indicates, at the bottom of Page 3, attachment of 4 files which were provided therewith. Copies of 2 of these files, "LvMsg.PRZ" and "msgctxt.prz", are submitted herewith as Exhibits D and E, respectively.

Exhibits A - E establish that we conceived our invention, as recited in independent Claims 1, 34, 100, 111, and 114 of the Subject Application, before October 6, 2000.

4)   The invention was diligently reduced to constructive practice in this country from prior to October 6, 2000 to the filing of the Parent Application on February 13, 2001. This diligence is evidenced by the following:

a)   The Invention Disclosure document and supporting information (including, *inter alia*, the information in Exhibits A - E) was mailed to a registered patent attorney on September 13, 2000 (notably, prior to October 6, 2000), with a target filing date of January 31, 2001, for the purpose of preparing and filing a utility patent application, which led to the February 13, 2001 filing of the Parent Application. See Exhibit F, providing a copy of the transmittal letter dated 09/13/2000 to the registered patent attorney.

b)   Initial discussions of the invention of the Parent Application with the registered patent attorney occurred on December 8, 2000 and December 13 - 14, 2000, and continuing into early January, 2001. See Exhibit G, which provides a copy of an email dated 12/08/2000 from Renee Kovales to the registered patent attorney. This email refers to "3 separate ideas", which

became IBM Dockets RSW9-2000-0126, RSW9-2000-0127, and RSW9-2000-0128, the latter of which is the Parent Application. See also Exhibit H, which provides a copy of an email dated 12/13/2000 from Renee Kovales to the registered patent attorney, and which provides additional discussion of these 3 IBM Dockets. Pages 4 - 5 of the email in Exhibit H pertain to the IBM Docket which is the Parent Application. Exhibit I provides a copy of an email from the registered patent attorney to Renee Kovales on 12/14/2000, discussing the Parent Application. Exhibits J, K, and L provide copies of an email dated 12/28/2000 and 2 emails dated 12/29/2000, respectively, from Renee Kovales to the registered patent attorney, providing additional discussion of the Parent Application (and each noting that charts were attached thereto). Exhibit M provides a copy of an email dated 01/03/2001 from the registered patent attorney, discussing a timeline for preparing the patent applications for the 3 IBM Dockets discussed with reference to Exhibits G and H (including the Parent Application).

c)   A first draft of the Parent Application was created by the registered patent attorney in early January, 2001 and distributed to us for review. Exhibit N provides a copy of an email dated 01/10/2001 from Edie Stern to the registered patent attorney, noting that comments ("First set of markups") are provided for "RSW9-2000-0128 first draft".

d)   A second draft of the Parent Application was created by the registered patent attorney and distributed to us for review on January 17, 2001. See Exhibit O, providing a copy of an email dated 01/17/2001 from the registered patent attorney, noting the subject as "RSW9-2000-0128 second draft".

e)   It should also be noted that we worked concurrently on the other 2 IBM Dockets which are referenced above with regard to Exhibits F and G during the above-discussed time

period. See Exhibit P, providing a copy of an email dated 01/22/2001 from the registered patent attorney to Edie Stern. (These IBM Dockets were also filed by IBM Corporation on February 13, 2001, as U. S. Patent Applications 09/782,564 and 09/782,772.)

f) A final draft of the Parent Application was sent to us by the registered patent attorney on January 31, 2001. See Exhibit Q, providing a copy of an email dated 01/31/2001 from the registered patent attorney, noting the subject as "RSW9-2000-0128 final draft".

g) Following our review and approval, this final draft of the Parent Application was sent by the registered patent attorney to IBM Corporation on January 31, 2001. See Exhibit R, providing a copy of a transmittal letter dated January 31, 2001 from the registered patent attorney to IBM Corporation.

h) Following receipt of this final draft of the Parent Application by IBM Corporation, we executed an Oath/Declaration therefor on February 12, 2001; February 7, 2001; and February 7, 2001, respectively, after which the Parent Application was filed by IBM Corporation on February 13, 2001.

5) We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U. S. C. §1001; and that such willful statements may jeopardize the validity of the application or any patent issued thereon.

Renee M. Kovales (signature)
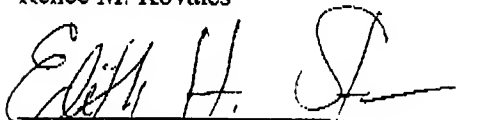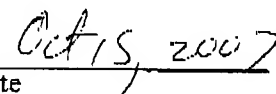
Renee M. Kovales

Date 10/12/2007

_____

Edith H. Stern

Date

_____

Barry E. Willner

Date

Renee M. Kovales _____   Date _____

Edith H. Stern (signature)

Edith H. Stern _____   _Oct 15, 2007_
                                 Date _____

Barry E. Willner _____   Date _____

Renee M. Kovales _____   Date _____

Edith H. Stern _____   Date _____

Barry E. Willner _____   Oct. 16, 2007
                                         Date
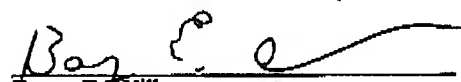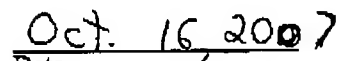
Exhibit A

Required fields are marked with the asterisk (*) and must be filled in to complete the form.

*Title of disclosure (in English)

Selectable Background Sound

Summary

Status	Final Decision (File)
Final deadline	
Final deadline reason	
Docket family	RSW9-2000-0128
* Processing location	Raleigh - RSW
* Functional area	(RSW) Hom: Technology Group (Kopkind,Lindquist)
Attorney/Patent professional	Jeanine Ray/Raleigh/IBM
Invention development team (IDT)	Marcia L Stockton/Raleigh/IBM
Submitted date	08/31/2000 04:17:56 PM EDT
* Owning division	AIM
Incentive program	
Lab	
* Technology code	
Patent value tool (PVT) score	

Inventors with a Blue Pages entry

Inventors: Renee Kovales/Raleigh/IBM, Barry Willner/Watson/IBM, Edie Stern/Fort Lauderdale/IBM

Inventor Name	Inventor Serial	Div/Dept	Inventor Phone	Manager Name
> Kovales, Renee		10/M0FA	N/A	Pozefsky, D.P. (Diane)
Willner, Barry E.		7H/M21A	N/A	Huber, Judy B.
Stern, Edith H.		22/VL7A	N/A	Harrison, Colin G.

> denotes primary contact

Inventors without a Blue Pages entry

Invention Development Team Information

Attorney/Patent professional	Jeanine Ray/Raleigh/IBM
Invention development team (IDT)	Marcia L Stockton/Raleigh/IBM@IBMUS
Response due to IP&L	10/01/2000

Main Idea

To view the Main Idea of this disclosure, open the "Main Idea" document from the view
*Critical Questions (Questions 1-9 must be answered in English)

*Question 1
On what date was the invention workable? 08/01/2000 Please format the date as MM/DD/YYYY
(Workable means i.e. when you know that your design will solve the problem)

| ***Question 2** | ○ Yes |
| Is there any planned or actual publication or disclosure of your invention to anyone outside IBM? | ● No |

If yes, Enter the name of each publication or patent and the date published below.
Publication/Patent:
Date Published or Issued:

| Are you aware of any publications, products or patents that relate to this invention? | ○ Yes |
| | ● No |

If yes, Enter the name of each publication or patent and the date published below.
Publication/Patent:
Date Published or Issued:

| ***Question 3** | ○ Yes |
| Has the subject matter of the invention or a product incorporating the invention been sold, used internally in manufacturing, announced for sale, or included in a proposal? | ● No |

| Is a sale, use in manufacturing, product announcement, or proposal planned? | ○ Yes |
| | ● No |

If Yes, identify the product if known and indicate the date or planned date of sale, announcements, or proposal and to whom the sale, announcement or proposal has been or will be made.
Product:
Version/Release:
Code Name:
Date:
To Whom:
If more than one, use cut and paste and append as necessary in the field provided.

| ***Question 4** | ○ Yes |
| Was the subject matter of your invention or a product incorporating your invention used in public, e.g., outside IBM or in the presence of non-IBMers? | ● No |

If yes, give a date. Please format the date as MM/DD/YYYY

| ***Question 5** | ○ Yes |
| Have you ever discussed your invention with others not employed at IBM? | ● No |

If yes, identify individuals and date discussed. Fill in the text area with the following information, the names of the individuals, the employer, date discussed, under CDA, and CDA #.

---

*Question 6	○ Yes
Was the invention, in any way, started or developed under a government contract or project?	● No
	○ Not sure

If Yes, enter the contract number

---

*Question 7	○ Yes
Was the invention made in the course of any alliance, joint development or other contract activities?	● No
If Yes, enter the following:	○ Not Sure

Name of Alliance, Contractor or Joint Developer
_____

Contract ID number
_____

Relationship contact name
_____

Relationship contact E-mail
_____

Relationship contact phone
_____

*Question 8
Have you, or any of the other inventors, submitted this same invention disclosure or similar invention disclosure previously?

○ Yes
● No

If Yes, please provide disclosure number below:

*Question 9
Are you, or any of the other inventors, aware of any related inventions disclosures submitted by anyone in IBM previously?

○ Yes
○ No

If Yes, please provide the docket or disclosure number or any other identifying information below:

Question 10
What type of companies do you expect to compete with inventions of this type? *Check all that apply.*
☐ Manufacturers of enterprise servers
☐ Manufacturers of entry servers
☐ Manufacturers of workstations
☐ Manufacturers of PC's
☒ Non-computer manufacturers
☐ Developers of operating systems
☐ Developers of networking software
☐ Developers of application software
☐ Integrated solution providers
☒ Service providers
☒ Other (Please specify below)

Question 11
If the invention relates to a product or service that is outside the scope of your business unit, please recommend IBM business unit(s), IBM location(s) or individual(s) within IBM that you think would provide a good evaluation of your invention:

*Patent Value Tool (Optional – this may be used by the inventor and attorney to assist with the evaluati...

(The Patent Value tool can be used by the inventor(s) to determine the potential licensing value of your invention.)
Market
*Question 1: What is the anticipated annual market size (in dollars) that will be captured by your invention?

Reason(s) for above Answer:

Claims

*Question 1: How new is the technical field?

Reason(s) for above Answer:

*Question 2: How central is the invention to the product(s) which might be expected to contain the invention?

Reason(s) for above Answer:

*Question 3: What is the scope of the claim?

Reason(s) for above Answer:

Portfolio Need
*Question 1: What are the portfolio needs in the area of your invention?

Reason(s) for above Answer:

Exploitation & Enforcement
*Question 1: How easily can the use of the invention by a competitor be detected?

Reason(s) for above Answer:

*Question 2: How easily can the use of the invention be avoided by a competitor?

Reason(s) for above Answer:

Business Value
*Question 1: What percentage of the companies producing products in the field of this invention might use this invention?

Reason(s) for above Answer:

*Question 2: What is the value of this patent to current or anticipated Alliance Activity between IBM and other companies?

Reason(s) for above Answer:

*Question 3: What is the value of this patent to current or anticipated Technology Transfer Activity between IBM and other companies?

Reason(s) for above Answer:

*Question 4: Does it result in prestige to IBM?

Reason(s) for above Answer:

Evaluation

This team evaluation was entered by Marcia Peters/Raleigh/IBM on 09/01/2000
What is the team's evaluation of this disclosure?   Search
Date evaluated : 08/31/2000
Evaluation comments
During the evaluation we broke RSW8-2000-0149 into 3 and rated them separately. (See RSW8-2000-0176 and -0177).

         Printed 10/19/2006 at 09:56:12 AM

REDACTED

This disclosure RSW8-2000-0177 pertains to mixing a selectable background sound into a voice message and it was also rated search but with a vote 4 in favor of search and 3 in favor of publish.

Final Evaluation History	Who made the final evaluation	Final evaluation date
Search	Marcia Peters/Raleigh/IBM	08/31/2000

Search Information

Date sent:	*Target completion date:	Search results received date:

Who was the search sent to (This area is to designate a Local Searcher name or WAIPL):

*Search type: ☐ Patentability ☐ Clearance ☐ Validity ☐ State of Art

*Features to be searched:

Search Office Information

Target completion date:	☐ Search has been delayed	Ship/Return date:

Search conducted by

Comments

Final Decision

This decision was entered by Dianne Lane/Raleigh/IBM on 09/13/2000

Decision: File	Status: N/A
PPM area:	
Date of final decision : 09/13/2000	

Additional filing information
Planned Filing date: 01/31/2000
Filing comments: Marcia Doubet

Additional decision comments

Final Decision History

Entered on 13-Sep-2000 by Dianne Lane
File N/A 13-Sep-2000 Docket Family: RSW920000128

Post Disclosure Text & Drawings
To add additional information related to this disclosure once it has been submitted, click the action button below and a new document will be opened for you to enter the new information. To view existing post disclosure information, double-click on the item in the list below (if there has been additional information entered), and the document will open for you to view.

Date entered   Post disclosure comments and drawings (double-click an item below to view)

Form Revised (05/28/03)

    Printed 10/19/2006 at 09:56:12 AM

Exhibit B

Main Idea for Disclosure RSW 8-2000-0177
Prepared for and/or by an IBM Attorney - IBM Confidential

Archived On 09/12/2000 01:03:24 AM

Title of disclosure (in English)
Selectable Background Sound

Main Idea

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.
Reference disclosure RSW8-2000-0149

2. How does the invention solve the problem or achieve an advantage, (a description of "the invention", including figures inline as appropriate)?

3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.

Exhibit C

<table>
<tr><td></td><td>

Main Idea for Disclosure RSW 8-2000-0149
Prepared for and/or by an IBM Attorney - IBM Confidential

Archived On 09/12/2000 01:02:10 AM
</td></tr>
</table>

Title of disclosure (in English)
Audio Content Context and Enhancement

Main Idea

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.
Our invention, audio content context and enhancement, is a system and method to provide additional context during audio messages, and to provide disambiguation of topics during audio messages. Further it allows "skimming" of voice mail analogous to a reader skimming the contents of an e-mail message.

Face to face communication between people involves many parallel communication paths. We derive information from body language, from words, from intonation, from facial expressions, from the distance between our bodies. Distance communication generally involves only a few of these paths, with users trying to overcome the limitations so imposed. Today, unified messaging and network convergence exacerbates the problem by adding the difficulties of media transformation to our communication.

E-mail tries to overcome these problems by using font sizes, colors and emoticons (combination of text symbols which bear a semblance to facial expressions) to express non-text information. This information includes emphasis, emotion, irony, etc. When e-mail is transformed via an audio read out, as is done in unified messaging, this context can be lost. In email, the paragraph structure and use of bolding and italics gives clues as to the number and importance of topics. Thus, e-mail tries to overcome the limitations of distance by using visual clues for both semantic and contextual meaning. Further, visual cues such as paragraph distinctions pertaining to the end of the message on the page are perceivable as soon as the page is displayed, providing a "broadside" perception of the message.

Voicemail has a different set of problems. When equivalent information is left via voicemail, while the recipient has the benefit of the nuances available through voice, the recipient does not have the advantages of the other parallel forms of communication available in person. Unlike e-mail, with voicemail the recipient does not have the advantage of broadside perception of the message. Our invention, audio content context and enhancement, helps to overcome both these limitations.

2. How does the invention solve the problem or achieve an advantage, (a description of "the invention", including figures inline as appropriate)?
Our invention is a method and system for disambiguating topics in an audio message and for communicating context associated with a message, or part of a message, with an audio cue (eg level of certainty of translation may be represented by a meaningful background tone). The invention enables rapid navigation of voicemail messages from an ordinary, non-screen, telephone, and rapid retrieval of phone numbers from the middle of a voicemail message. This invention also enables messages to be left with "favorite music" tags.

Base level is delineation (disambiguate)
Next level is selection of context
Personal choice of audio (theme song)

Disambiguating topics:
Leaving a message - Speakers tend to be less precise in oral speech than they are in written communications. This can be inefficient when communicating via voicemail. Our invention includes a method and system for such speakers to signal, with a keyed alert sequence (KAS) during the course of

the message they are leaving, that they are now changing topic, or marking a particularly important passage. This is accomplished with a sequence of keystrokes on the telephone keypad. For example, in a message covering two topics, the speaker may pause, key in the KAS (e.g., *), and continue speaking. The KAS alerts the voicemail system that a new topic has been started. If a very important passage is about to be communicated, e.g., a phone number or identifier, the speaker may key in the appropriate alert (e.g., * or perhaps another sequence such as *9) before communicating the information.

Note: In the above description, the KAS may be recorded as part of the audio stream. In an alternate embodiment, KAS detection causes the development of metadata associated with the audio stream which allows the voicemail system to index to the KAS points.

Preparing the message for retrieval - The voicemail system analyzes each message for KAS tones. If such tones have been used, the voicemail system can associate an audio cue with each section of the message so delineated. The associated cues are mixed in with the message, i.e., "conferenced". Alternatively, the voicemail system may alternate between two such audio cues, with adjacent sections each having one of the cues. Such cues may be musical, for example tunes. They may be natural sounds such as birdsong, ocean waves. One cue may be high pitched and the next low pitched, etc. The information being conveyed is in the parsing of the topics. The voicemail system can then index the message so that the KAS tones form a series of navigable points within the message. In another embodiment, the association of audio cues with the sections of the message can be done as the message is retrieved, by either the voicemail system or the client telephone equipment (e.g., the cellphone).
Retrieving the message - When a user acts to receive the message, the voicemail system can announce or otherwise convey (e.g., with a numerical indicator on a cell phone display) the existence, and the number of KAS delineated sections. This gives the user a sense of topics to be covered. That is, along with the date and time, and number of origin of the message, the number of topics can also be announced. Alternatively, the audio cues can indicate to the user the continuity of the topic. When the cues change, the topic has changed.

Forward to the next topic - This invention enables a new voicemail feature: forward to the next topic. Each topic is delineated with a KAS and is navigable. Thus, the user can listen to the voicemail serially, or can listen to a few seconds of each topic, and skip to the next as necessary. This is particularly useful during replay of messages. When a user has listened to a message, and potentially missed noting a phone number for example, then if that phone number had been noted with a KAS, the user can navigate to it more easily.

Actions on partial voicemails - With each section delineated, this invention enables new voicemail feature which act on each section individually. Any action that can be taken on a voicemail can be taken on a partial voicemail. The user can delete or forward partial voicemails. At the end or beginning of a KAS delineated topic, the user can elect to forward only the previous section or the upcoming section to a third party. This usefully allows the pertinent portion of a message to be forwarded, while allowing the user to retain privacy on the remainder of the message. Similarly, the user can choose to delete one or more delineated sections of a voicemail, retaining only those portions which he or she desires to save .

Media Transformation: An audio cue can be used to minimize the effect of a media transformation from a non-audio source such as text. In one embodiment, each paragraph separation is taken to be a KAS as above, and an audio cue is mixed into the message. In another embodiment, an appropriate audio file is mixed with the resultant audio from the transformation, and thereby providing parallel information as to context. In this invention, we are not inserting an audio sound or cue in-line in the message (e.g., a giggle sound in place of a smiley emoticon), but we are "conferencing" an appropriate audio file for part of, or all of, the message. An appropriate cue may be determined in several ways. If the originating source has supplied keywords, this can be used as a source of cueing. If the originating source has not supplied keywords, (e.g., today's e-mail systems), the transformation may select an appropriate noun in the first few sentences to use as a source of cueing. For example, if the first sentence of a paragraph reads "The wedding date has been set.", the appropriate audio cue may be church bells. If the sentence reads "The meeting was very productive" the appropriate audio cue may be papers rustling, and low conversation.

Other Information: Audio cues can provide additional contextual information, especially for transformations. For example, when machine language translation is involved, audio cues can be used to indicate degree of certainty in the translation. A background hum might indicate certainty of translation, with higher pitches indicating more certainty and lower pitches indicating less. Note that this may be usefully employed in an audio to audio transform, with voice recognition in the middle, or a text to speech plus language transform. Another example would be in the use of speaker identification to identfiy the speaker leaving a voicemail. The background tone can indicate the degree of certainty in the identification. Similar methods can be used to highlight passages in text as to degree of certainty, when for instance the text was obtained through voice recognition. Another example, in a text to speech system an audio cue could be used to indicate the color of the text (which may indicate the degree of importance, a change in topic, and etc.); the background hum as described above could be applied in this case with the pitch indicating the level of importance, a different topic, or more simply a change in color.

Audio only messages: In another embodiment, we associate an audio emotional cue with an audio message. In this embodiment, the audio file is selected by the speaker to be mixed with the message, or inserted in the message directly without transformation. The file selected represents the context which the user wishes to convey. For example, for an angry message, the user may select quiet rolling thunder as a background. The user can select this effect before the message, during the message, or after the message is recorded with appropriate DTMF tones on the telephone keypad. This can also be done for parts of the message, as delineated with KAS tones.

User selected audio background: In this embodiment, the speaker selects the audio background as part of the message being left. For example, the speaker may select from a number of offered backgrounds ("top 40") what music is to play in the background of the message. The music is mixed with the message, as the other audio cues above. In an alternate embodiment, the speaker's telephone client receives the selection request and communicates it to the voice mail system. If the speaker has unique or favorite music (for example as is used to provide ringing tone on a cell phone), and wishes to have this familiar identification (e.g., a speaker's "theme song") as part of the message being left, the telephone can communicate the music, or identify the music to the receiving voicemail system.

Note that this embodiment enables a business model of merchandizing play out of popular music, via a subscription, or a pay per use of the music. In this model, it is expected that the speaker would pay for the music, as the receiver has no opportunity to accept or decline. This is consistent with the Calling Party Pays model standard in telephony. Again, the music may be transmitted from the phone, identified from the phone, or supplied by the voicemail system from a control indicator sent by the phone. Note that Sonera has a lucrative business of downloading ringing music to phones for 50 cents a crack; this is the equivalent for leaving messages.

Figure 1: Call flow leaving a message with delineation (including finding the phone number)

LvMsg.PRZ

Figure 2: Playing a voicemail which has delineation

playvm.prz

Figure 3: Leaving a message with context

msgctxt.prz

Figure 4: Histogram for the GUI; GUI is web driven for example

AudioSegments.PR:

REDACTED

The invention outlined in this document has the following advantages/differences:
1. Allows caller to associate background sounds with the message.
2. Is designed to improve a voice mail system and therefore has options that are applicable in a voice mail system only (such as forwarding message segments to another user, storing only some segments while deleting others).
3. Allows for indications of translation certainty via background sound

REDACTED

Claims

Claim 1: a system and method for providing message sectioning comprising
  reception of speech
  delineation of sections of speech
  association of sections of speech with audio cue
Claim 1A: the system of claim 1 where
  KAS tones are captured
  sections are delineated by KAS tones
Claim 2: where association is done by voicemail system before retrieval
Claim 3: where audio cue is chosen by the speaker
Claim 4: where audio cue is chosen by the voicemail system

Claim 5: a system and method for providing message context comprising
  user message
  determination of context
  association of context with an audio file
  creation of a new message composed of user message and audio file
  new message transmission

Claim 5A: the method of claim 5 where
  determination of context is performed by the user

Claim5B: the method of claim 5 where
  determination of context is based on degree of certainty of the message data

Claim 5C the method of claim 5B where
  the message data is the content of the message

Claim 5D the method of claim 5 where
  the message data is the identification of the originator of the message

Claim 6: The method of claim 5 where
     the user message is text
Claim 7: The method of claim 5 where
     the message context is an emoticon
Claim 8: The method of claim 6 where
     the new message is a transformation to audio
Claim 9: The method of claim 8 where
     the audio file is mixed with the verbalization of the text for the duration of the verbalization
Claim 6: The method of claim 8 where
     the audio file is longer than the duration of the verbalization
Claim n: The method of claim 5 where the user message is verbal (such as voice mail)
    The method of claim n where the selection of the context is made after the recording
    The method of claim n where the audio file is mixed with the message for the duration of the
message
    The method of claim n where the audio file is longer

Claim 10: The system of claim 1 where
     sections are individually responsive to voicemail commands
Claim 11: The system of claim 10 where
     sections respond to forwarding
Claim 12: The system of claim 10 where
     sections respond to deleting

Claim 13 a system and method for providing message sectioning comprising
     reception of speech
     reception of audio cues
     delineation of sections of speech

Claim 14 the method of claim 13 further comprising
     association of sections of speech with audio cues

Claim 15: The method of claim 1 where
     delineation of sections of audio is done in line

Claim16: The method of claim 1 where
     delineation of sections of audio is done via associated metadata

(siomilar dependent claims)

3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?
Today, users of voicemail from a telephone do not have the ability to navigate within the voicemail in a controlled fashion. Some systems allow the user to speed up the message, or skip the message, but none allow the originator of the message to specify where the topics lie. This enables semantic navigation.

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.
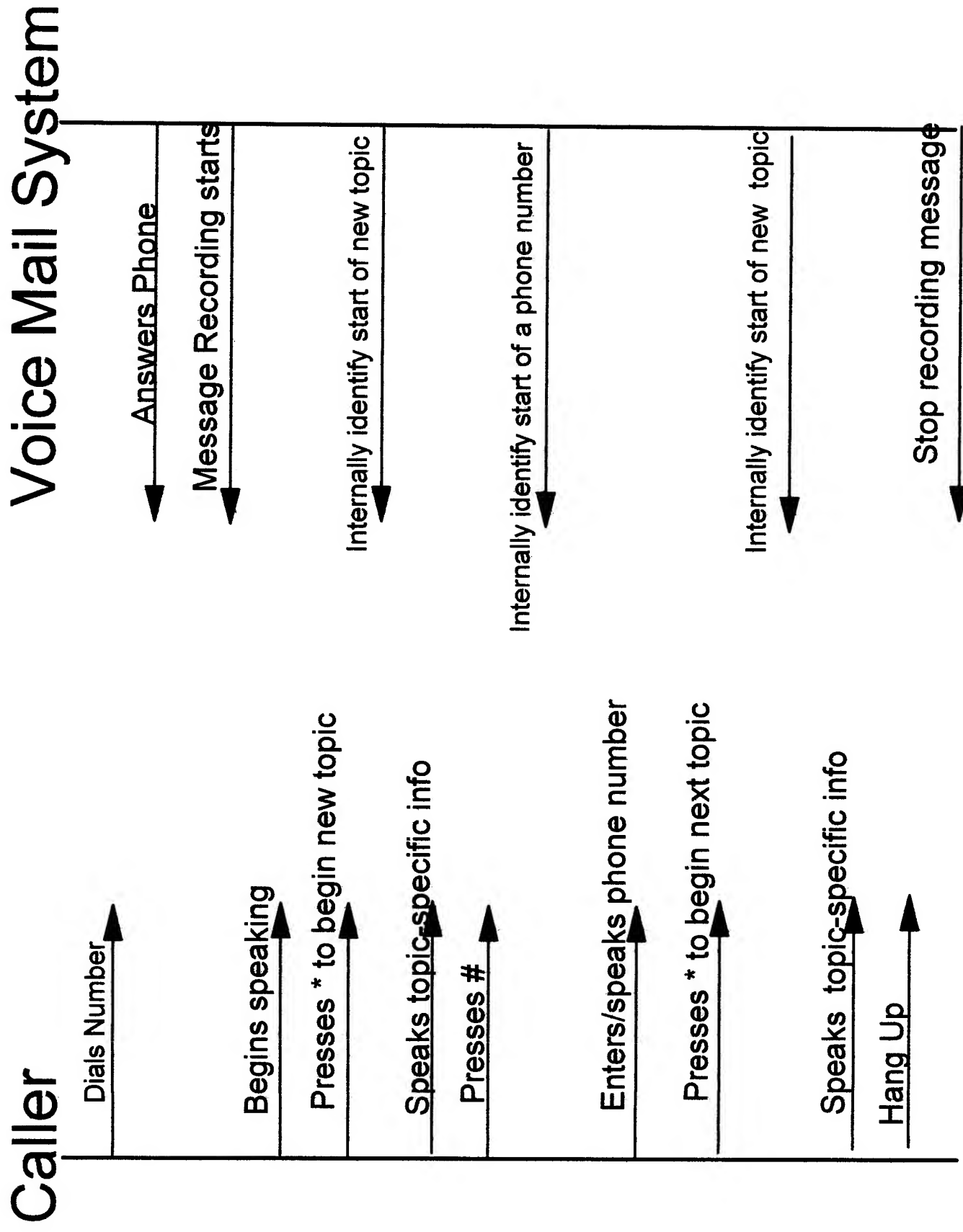na

Exhibit D

Figure 1

Voice Mail System

Answers Phone

Message Recording starts

Internally identify start of new topic

Internally identify start of a phone number

Internally identify start of new topic

Stop recording message

Caller

Dials Number

Begins speaking

Presses * to begin new topic

Speaks topic-specific info

Presses #

Enters/speaks phone number

Presses * to begin next topic

Speaks topic-specific info

Hang Up

Exhibit E

Figure 3 (lv msg w/ ctxt)

Caller

Voice Mail System

Dials Number → Answers Phone

→ Message Recording starts

Selects Context with DTMF → System prompts for context

Begins speaking → Internally save context

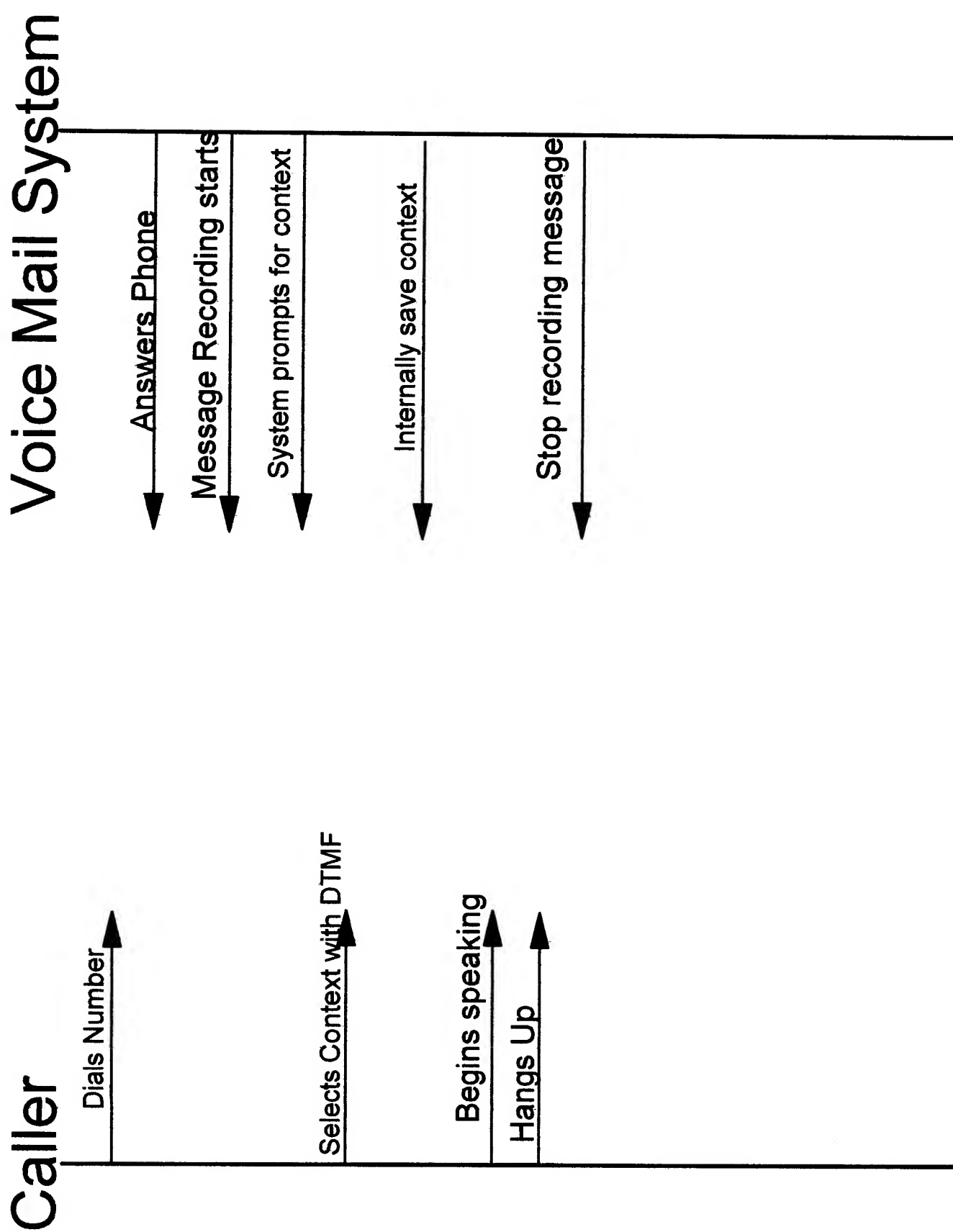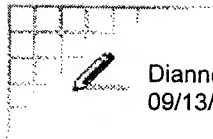Hangs Up → Stop recording message

Exhibit F

Dianne Lane
09/13/2000 01:55 PM

To: Marcia Doubet/Raleigh/Contr/IBM@ibmus
cc:
From: Dianne Lane/Raleigh/IBM@IBMUS
Subject: Dockets RSW9-2000-0126, 0127 and 0128

Hey, Marcia. Per your conversation with Jeanine I've set up three new dockets and am forwarding the disclosure materials to you today by first class mail. Renee Kovales will act as lead inventor for all three applications. Her number is 254-4522. These applications need to be filed by January 31, 2001. Thanks much!

Dianne Lane
IBM Software Group Intellectual Property Law
Phone: (919) 543-6383 (TL 441)
Fax: (919) 254-4330 (TL 444)

Visit the RTP Legal Web Site at: http://w3legal.raleigh.ibm.com/index.html
for answers to common legal questions.

Exhibit G

To: "Marcia L. Doubet" <mld@mindspring.com>
Subject: Fw: Patent info
X-Mailer: Lotus Notes Release 7.0 HF242 April 21, 2006
From: Renee Kovales <rkovales@us.ibm.com>
Date: Fri, 12 Oct 2007 11:38:56 -0400
X-MIMETrack: Serialize by Router on D03NM118/03/M/IBM(Release 8.0|August 02, 2007) at
10/12/2007
 09:38:58,
        Serialize complete at 10/12/2007 09:38:58
X-ELNK-Received-Info: spv=0;
X-ELNK-AV: 0
X-ELNK-Info: sbv=0; sbrc=.0; sbf=00; sbw=000;

Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522

—— Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:40 AM ——
Renee Kovales/Raleigh/IBM

12/08/2000 10:12 AM

                                                                                        To
Marcia Doubet/Raleigh/Contr/IBM@ibmus
                                                                                        cc
                                                                                        Subject
Patent info

Hi Marcia,

Originally we started with 1 idea and then it was split into 3 separate ideas when we brought our idea to the review board.   I haven't updated the original text to split the information apart, but can do so. I've included the summary of each idea and the original text, below. Let me know if this is what you need and how I can help. I have a lot of vacation in December, but can plan to work on this as required.   Just let me know what your schedule is for working on this in December. Also, I will be at a conference 1/14/01-1/21/01.

Here is a summary of the breakout:

RSW8-2000-0149 Audio Context Content and Enhancement (Renee Kovales et al. x44522) *Split into 3 disclosures, all 3 rated search (please submit 2 additional WPTS disclosures).*
> * *Recording voice mail and leaving freeform bookmarks ; during playback, method of navigating through speech containing freeform bookmarks.*
> * Text to speech - audio renderings for expressing text nuances (bold, font, color, all caps, emoticons, etc.) in speech. Additionally, the use of stylesheets to configure the rendering process . If the claims include this stylesheets idea, Jim Matthewson should be named as a co-inventor. IP Law may choose to split this into multiple patents.
> * *Selectable mixed background sound for voice messaging system.*
> * NOTE: We'd like this team of inventors to bring in another disclosure on the use of hypertext links in speech in a voice recognition or text-to-speech system, e.g. phone numbers (do you want me to dial this number?), URLs (do you want me to read you this website)... etc.

Here is the text that we submitted:

1. Describe your invention, stating the problem solved (if appropriate), and indicating the advantages of using the invention.
Our invention, audio content context and enhancement, is a system and method to provide additional context during audio messages, and to provide disambiguation of topics during audio messages. Further it allows "skimming" of voice mail analogous to a reader skimming the contents of an e-mail message.

Face to face communication between people involves many parallel communication paths. We derive information from body language, from words, from intonation, from facial expressions, from the distance between our bodies. Distance communication generally involves only a few of these paths, with users trying to overcome the limitations so imposed. Today, unified messaging and network convergence exacerbates the problem by adding the difficulties of media transformation to our communication.

E-mail tries to overcome these problems by using font sizes, colors and emoticons (combination of text symbols which bear a semblance to facial expressions) to express non-text information. This information includes emphasis, emotion, irony, etc. When e-mail is transformed via an audio read out, as is done in unified messaging, this context can be lost. In email, the paragraph structure and use of bolding and italics gives clues as to the number and importance of topics. Thus, e-mail tries to overcome the limitations of distance by using visual clues for both semantic and contextual meaning. Further, visual cues such as paragraph distinctions pertaining to the end of the message on the page are perceivable as soon as the page is displayed, providing a "broadside" perception of the message.

Voicemail has a different set of problems. When equivalent information is left via voicemail, while the recipient has the benefit of the nuances available through voice, the recipient does not have the advantages of the other parallel forms of communication available in person. Unlike e-mail, with voicemail the recipient does not have the advantage of broadside perception of the message. Our invention, audio content context and enhancement, helps to overcome both these limitations.

2. How does the invention solve the problem or achieve an advantage,(a description of "the invention", including figures inline as appropriate)?
Our invention is a method and system for disambiguating topics in an audio message and for communicating context associated with a message, or part of a message, with an audio cue (eg level of certainty of translation may be represented by a meaningful background tone). The invention enables rapid navigation of voicemail messages from an ordinary, non-screen, telephone, and rapid retrieval of phone numbers from the middle of a voicemail message. This invention also enables messages to be left with "favorite music" tags.

Base level is delineation (disambiguate)
Next level is selection of context
Personal choice of audio (theme song)

Disambiguating topics:
Leaving a message - Speakers tend to be less precise in oral speech than they are in written communications. This can be inefficient when communicating via voicemail. Our invention includes a method and system for such speakers to signal, with a keyed alert sequence (KAS) during the course of the message they are leaving, that they are now changing topic, or marking a particularly important passage. This is accomplished with a sequence of keystrokes on the telephone keypad. For example, in a message covering two topics, the speaker may pause, key in the KAS (e.g., *), and continue speaking. The KAS alerts the voicemail system that a new topic has been started. If a very important passage is about to be communicated, e.g., a phone number or identifier, the speaker may key in the appropriate alert (e.g., * or perhaps another sequence such as *9) before communicating the information.

Note: In the above description, the KAS may be recorded as part of the audio stream. In an alternate embodiment, KAS detection causes the development of metadata associated with the audio stream which allows the voicemail system to index to the KAS points.

Preparing the message for retrieval - The voicemail system analyzes each message for KAS tones. If such tones have been used, the voicemail system can associate an audio cue with each section of the message so delineated. The associated cues are mixed in with the message, i.e., "conferenced". Alternatively, the voicemail system may alternate between two such audio cues, with adjacent sections each having one of the cues. Such cues may be musical, for example tunes. They may be natural sounds such as birdsong, ocean waves. One cue may be high pitched and the next low pitched, etc. The information being conveyed is in the parsing of the topics. The voicemail system can then index the message so that the KAS tones form a series of navigable points within the message. In another embodiment, the association of audio cues with the sections of the message can be done as the message is retrieved, by either the voicemail system or the client telephone equipment (e.g., the cellphone).
Retrieving the message - When a user acts to receive the message, the voicemail system can announce or otherwise convey (e.g., with a numerical indicator on a cell phone display) the existence, and the number of KAS delineated sections. This gives the user a sense of topics to be covered. That is, along with the date and time, and number of origin of the message, the number of topics can also be announced. Alternatively, the audio cues can indicate to the user the continuity of the topic. When the cues change, the topic has changed.

Forward to the next topic - *This invention enables a new voicemail feature: forward to the next topic. Each topic is delineated with a KAS and is navigable. Thus, the user can listen to the voicemail serially, or can listen to a few seconds of each topic, and skip to the next as necessary. This is particularly useful during replay of messages. When a user has listened to a message, and potentially missed noting a phone number for example, then if that phone number had been noted with a KAS, the user can navigate to it more easily.*

Actions on partial voicemails - *With each section delineated, this invention enables new voicemail feature which act on each section individually. Any action that can be taken on a voicemail can be taken on a partial voicemail. The user can delete or forward partial voicemails. At the end or beginning of a KAS delineated topic, the user can elect to forward only the previous section or the upcoming section to a third party. This usefully*

allows the pertinent portion of a message to be forwarded, while allowing the user to retain privacy on the remainder of the message. Similarly, the user can choose to delete one or more delineated sections of a voicemail, retaining only those portions which he or she desires to save.

Media Transformation: An audio cue can be used to minimize the effect of a media transformation from a non-audio source such as text. In one embodiment, each paragraph separation is taken to be a KAS as above, and an audio cue is mixed into the message. In another embodiment, an appropriate audio file is mixed with the resultant audio from the transformation, and thereby providing parallel information as to context. In this invention, we are not inserting an audio sound or cue in-line in the message (e.g., a giggle sound in place of a smiley emoticon), but we are "conferencing" an appropriate audio file for part of, or all of, the message. An appropriate cue may be determined in several ways. If the originating source has supplied keywords, this can be used as a source of cueing. If the originating source has not supplied keywords, (e.g., today's e-mail systems), the transformation may select an appropriate noun in the first few sentences to use as a source of cueing. For example, if the first sentence of a paragraph reads "The wedding date has been set.", the appropriate audio cue may be church bells. If the sentence reads "The meeting was very productive" the appropriate audio cue may be papers rustling, and low conversation.

Other Information: Audio cues can provide additional contextual information, especially for transformations. For example, when machine language translation is involved, audio cues can be used to indicate degree of certainty in the translation. A background hum might indicate certainty of translation, with higher pitches indicating more certainty and lower pitches indicating less. Note that this may be usefully employed in an audio to audio transform, with voice recognition in the middle, or a text to speech plus language transform. Another example would be in the use of speaker identification to identfiy the speaker leaving a voicemail. The background tone can indicate the degree of certainty in the identification. Similar methods can be used to highlight passages in text as to degree of certainty, when for instance the text was obtained through voice recognition. Another example, in a text to speech system an audio cue could be used to indicate the color of the text (which may indicate the degree of importance, a change in topic, and etc.); the background hum as described above could be applied in this case with the pitch indicating the level of importance, a different topic, or more simply a change in color.

Audio only messages: In another embodiment, we associate an audio emotional cue with an audio message. In this embodiment, the audio file is selected by the speaker to be mixed with the message, or inserted in the message directly without transformation. The file selected represents the context which the user wishes to convey. For example, for an angry message, the user may select quiet rolling thunder as a background. The user can select this effect before the message, during the message, or after the message is recorded with appropriate DTMF tones on the telephone keypad. This can also be done for parts of the message, as delineated with KAS tones.

User selected audio background: In this embodiment, the speaker selects the audio background as part of the message being left. For example, the speaker may select from a number of offered backgrounds ("top 40") what music is to play in the background of the message. The music is mixed with the message, as the other audio cues above. In an alternate embodiment, the speaker's telephone client receives the selection request and communicates it to the voice mail system. If the speaker has unique or favorite music (for example as is used to provide ringing tone on a cell phone), and wishes to have this familiar identification (e.g., a speaker's "theme song") as part of the message being left, the telephone can communicate the music, or identify the music to the receiving voicemail system.

Note that this embodiment enables a business model of merchandizing play out of popular music, via a subscription, or a pay per use of the music. In this model, it is expected that the speaker would pay for the music, as the receiver has no opportunity to accept or decline. This is consistent with the Calling Party Pays model standard in telephony. Again, the music may be transmitted from the phone, identified from the phone, or supplied by the voicemail system from a control indicator sent by the phone. **REDACTED**

Figure 1: Call flow leaving a message with delineation (including finding the phone number). Detached LvMsg.PRZ

Figure 2: Playing a voicemail which has delineation. Detached playvm.prz

Figure 3: Leaving a message with context. Detached msgctxt.prz

Figure 4: Histogram for the GUI; GUI is web driven for example. Detached AudioSegments.prz

Prior Art

Emoticons – these are combinations of text used in e-mail messages to suggest an emotional context for the text. For example: :) suggests a smile, sideways. :(suggests a sad face or frown. Emoticon information can be found on the web at websites such as: www.squareonetech.com/emoticon.html and www.bmiglobal.com/emoticon.htm. Additionally, books have been written on the subject; for example, *Smileys* by David W. Sanderson.

.WAV files – *.WAV files can be used in text/ graphics messages to add an emotional element to the text. For example, .wav files can include laughing, clapping, and etc. In current implementations, these .wav files are positional. AOL's chat sessions have the capability to play a .wav file for others on the chat (assuming they have sound capabilities). One such chat session is The Herd (http://members.aol.com/earlwerks/herd.htm) – which even posts a set of .wav files for chat members. Internet Relay Chat (IRC) is another example of chats with sound capabilities.*

In text-to-speech systems, emoticons, when encountered, can be either read a character at a time, are interpreted into a description (e.g., "Smiley Face" is announced for :)), or play the appropriate sound accompanying the emoticon (e.g., giggle is heard when the giggle emoticon is encountered).

NotesBuddy found on www.alphaworks.ibm.com interprets emoticons as the actual characters.
In IBM's ViaVoice, users can define how the system will say an emoticon - this would be added to the user's dictionary.

An e-mail discussing the idea of generating the emoticon to the equivalent sound can be found at http://lists.w3.org/Archives/Public/w3c-wai-ig/1998JulSep/0349.html

http://www.bell-labs.com/project/tts/voices.html has TTS synthesis which reads emoticons as the actual characters (a demo of their product is on this web page).

REDACTED

The invention outlined in this document has the following advantages/differences:
* Allows caller to associate background sounds with the message.
* Is designed to improve a voice mail system and therefore has options that are applicable in a voice mail system only (such as forwarding message segments to another user, storing only some segments while deleting others).
* Allows for indications of translation certainty via background sound

REDACTED

Claims

Claim 1: a system and method for providing message sectioning comprising
        reception of speech
        delineation of sections of speech
        association of sections of speech with audio cue
Claim 1A: the system of claim 1 where
        KAS tones are captured
        sections are delineated by KAS tones
Claim 2: where association is done by voicemail system before retrieval
Claim 3: where audio cue is chosen by the speaker
Claim 4: where audio cue is chosen by the voicemail system

Claim 5: a system and method for providing message context comprising
        user message
        determination of context
        association of context with an audio file
        creation of a new message composed of user message and audio file
        new message transmission

Claim 5A: the method of claim 5 where
        determination of context is performed by the user

Claim5B: the method of claim 5 where
        determination of context is based on degree of certainty of the message data

Claim 5C the method of claim 5B where
        the message data is the content of the message

Claim 5D the method of claim 5 where
        the message data is the identification of the originator of the message

Claim 6: The method of claim 5 where
        the user message is text
Claim 7: The method of claim 5 where
        the message context is an emoticon
Claim 8: The method of claim 6 where
        the new message is a transformation to audio
Claim 9: The method of claim 8 where
        the audio file is mixed with the verbalization of the text for the duration of the verbalization
Claim 6: The method of claim 8 where
        the audio file is longer than the duration of the verbalization
Claim n: The method of claim 5 where the user message is verbal (such as voice mail)
    The method of claim n where the selection of the context is made after the recording
    The method of claim n where the audio file is mixed with the message for the duration of the message
    The method of claim n where the audio file is longer

Claim 10: The system of claim 1 where
        sections are individually responsive to voicemail commands
Claim 11: The system of claim 10 where
        sections respond to forwarding
Claim 12: The system of claim 10 where
        sections respond to deleting

Claim 13 a system and method for providing message sectioning comprising
        reception of speech
        reception of audio cues
        delineation of sections of speech

Claim 14 the method of claim 13 further comprising
                association of sections of speech with audio cues

Claim 15: The method of claim 1 where
                delineation of sections of audio is done in line

Claim16: The method of claim 1 where
                delineation of sections of audio is done via associated metadata

(siomilar dependent claims)

3. If the same advantage or problem has been identified by others (inside/outside IBM), how have those others solved it and does your solution differ and why is it better?
Today, users of voicemail from a telephone do not have the ability to navigate within the voicemail in a controlled fashion. Some systems allow the user to speed up the message, or skip the message, but none allow the originator of the message to specify where the topics lie. This enables semantic navigation.

4. If the invention is implemented in a product or prototype, include technical details, purpose, disclosure details to others and the date of that implementation.
na

Renee

```
Renee Kovales
Research Triangle Park, NC
(919) 254-4522, t/l 444-4522
```

Exhibit H

Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522

---- Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:40 AM ----
Renee Kovales/Raleigh/IBM

12/13/2000 04:13 PM

	To
Marcia Doubet/Raleigh/Contr/IBM	
	cc
	Subject
Patent info	

Hi Marcia,

I took a pass on separating this out, but I think I need to work on it some more.   **REDACTED**

Renee

Recording and Receiving Voice Mail with Freeform Bookmarks:

Description of the Problem:
Face to face communication between people involves many parallel communication paths. We derive information from body language, from words, from intonation, from facial expressions, from the distance between our bodies. Distance communication generally involves only a few of these paths, with users trying to overcome the limitations so imposed.

E-mail tries to overcome these problems by using font sizes, colors and emoticons (combination of text symbols which bear a semblance to facial expressions) to express non-text information. This information includes emphasis, emotion, irony, etc. In e-mail, the paragraph structure and use of bolding and italics gives clues as to the number and importance of topics. Thus, e-mail tries to overcome the limitations of distance by using visual clues for both semantic and contextual meaning. Further, visual cues such as paragraph distinctions are perceivable as soon as the page is displayed, providing a "broadside" perception of the message.

Voicemail has a different set of problems. While the recipient has the benefit of the nuances available through voice, the recipient does not have the advantages of the other parallel forms of communication available in person. Unlike e-mail, with voicemail the recipient does not have the advantage of broadside perception of the message. Additionally, the recipient is hampered in the retrieval of and subsequent actions on the message due to the inability to act on parts of the voice mail message, as can be done with e-mail.

Our invention, Recording and Receiving Voice Mail with Freeform Bookmarks, helps to overcome these limitations, and defines a more flexible voice mail system.

Description of the Invention:
Our invention, Recording and Receiving Voice Mail with Freeform Bookmarks, is a system and method to provide disambiguation of topics during audio messages. Further it allows "skimming" of voice mail analogous to a reader skimming the contents of an e-mail message. This invention provides for a more flexible voice mail system. The invention enables rapid navigation of voicemail messages from an ordinary, non-screen, telephone, and rapid retrieval of phone numbers or special text from the middle of a voice mail message. Overall, this invention provides for a more flexible voice mail system.

Disambiguating topics:
Leaving a message - Speakers tend to be less precise in oral speech than they are in written

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communications. This can be inefficient when communicating via voicemail. Our invention includes a method and system for such speakers to signal, with a keyed alert sequence (KAS) during the course of the message they are leaving, that they are now changing topic, or marking a particularly important passage. This is accomplished with a sequence of keystrokes on the telephone keypad. For example, in a message covering two topics, the speaker may pause, key in the KAS (e.g., *), and continue speaking. The KAS alerts the voicemail system that a new topic has been started. If a very important passage is about to be communicated, e.g., a phone number or identifier, the speaker may key in the appropriate alert (e.g., * or perhaps another sequence such as *9) before communicating the information.

Note: In the above description, the KAS may be recorded as part of the audio stream. In an alternate embodiment, KAS detection causes the development of metadata associated with the audio stream which allows the voicemail system to index to the KAS points.

Figure 1: Call flow leaving a message with delineation (including finding the phone number)

Preparing the message for retrieval – The voicemail system analyzes each message for KAS tones. If such tones have been used, the voicemail system can associate an audio cue with each section of the message so delineated. The associated cues are mixed in with the message, i.e., "conferenced". Alternatively, the voicemail system may alternate between two such audio cues, with adjacent sections each having one of the cues. Such cues may be musical, for example tunes. They may be natural sounds such as birdsong, ocean waves. One cue may be high pitched and the next low pitched, etc. The information being conveyed is in the parsing of the topics. The voicemail system can then index the message so that the KAS tones form a series of navigable points within the message. In another embodiment, the association of audio cues with the sections of the message can be done as the message is retrieved, by either the voicemail system or the client telephone equipment (e.g., the cellphone).

Retrieving the message – When a user acts to receive the message, the voicemail system can announce or otherwise convey (e.g., with a numerical indicator on a cell phone display) the existence, and the number of KAS delineated sections. This gives the user a sense of the topics to be covered. That is, along with the date and time, and number of origin of the message, the number of topics can also be announced. Alternatively, the audio cues can indicate to the user the continuity of the topic. When the cues change, the topic has changed.

Forward to the next topic – *This invention enables a new voice mail feature: forward to the next topic or each marked section. Each topic is delineated with a KAS and is navigable. Thus, the user can listen to the voicemail serially, or can listen to a few seconds of each topic, and skip to the next as necessary. This is particularly useful during replay of messages. When a user has listened to a message, and potentially missed noting a phone number for example, then if that phone number had been noted with a KAS, the user can navigate to it more easily.*

Actions on partial voicemails – *With each section delineated, this invention enables new voice mail feature which act on each section individually. Any action that can be taken on a voice mail message can be taken on a section of voice mail. The user can delete or forward partial voice mails. At the end or beginning of a KAS delineated topic, the user can elect to forward only the previous section or the upcoming section to a third party. This usefully allows the pertinent portion of a message to be forwarded, while allowing the user to retain privacy on the remainder of the message. Similarly, the user can choose to delete one or more delineated sections of a voicemail, retaining only those portions which he or she desires to save. Additional actions would include, but are not limited to: replaying the section, and saving the section.*

Figure 2: Playing a voicemail which has delineation

Figure 4: Histogram for the GUI; GUI is web driven for example

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Text to Speech - Audio Renderings for Expressing Text Nuances:

Description of the Problem:

Face to face communication between people involves many parallel communication paths. We derive information from body language, from words, from intonation, from facial expressions, from the distance between our bodies. Distance communication generally involves only a few of these paths, with users trying to overcome the limitations so imposed. Today, unified messaging and network convergence exacerbates the problem by adding the difficulties of media transformation to our communication. E-mail tries to overcome these problems by using font sizes, colors and emoticons (combination of text symbols which bear a semblance to facial expressions) to express non-text information. This information includes emphasis, emotion, irony, etc. When e-mail is transformed via an audio read out, as is done in unified messaging, this context can be lost. The loss of the context of messages may result in a loss of understanding of the topic or the underlying meaning of the message.

In addition to the loss of context, translations are sometimes inaccurate. While the recipient listens to the translations, they may not be aware of which parts of the translation are accurate and which are not. The recipient must either trust that the information is 100% accurate, or assume that part or none of it is accurate. In either case, a loss in communications may occur, and certainly there is a potential for a loss of time. There is a need to identify to the recipient the certainty of the translation.

Description of the Invention:

Our invention, Text to Speech - Audio Renderings for Expressing Text Nuances, is a system and method to provide additional context during audio messages.

Context Enhancement: An audio cue can be used to minimize the effect of a media transformation from a non-audio source such as text. In one embodiment, each paragraph separation is taken to be a KAS (as described above in Recording and Receiving Voice Mail with Freeform Bookmarks), and an audio cue is mixed into the message. In another embodiment, an appropriate audio file is mixed with the resultant audio from the transformation, and thereby providing parallel information as to context. In this invention, we are not inserting an audio sound or cue in-line in the message (e.g., a giggle sound in place of a smiley emoticon), but we are "conferencing" an appropriate audio file for part of, or all of, the message. An appropriate cue may be determined in several ways. If the originating source has supplied keywords, this can be used as a source of cueing. If the originating source has not supplied keywords, (e.g., today's e-mail systems), the transformation may select an appropriate noun in the first few sentences to use as a source of cueing. For example, if the first sentence of a paragraph reads "The wedding date has been set.", the appropriate audio cue may be church bells. If the sentence reads "The meeting was very productive" the appropriate audio cue may be papers rustling, and low conversation.

Translation Accuracy: Audio cues can provide additional contextual information, especially for transformations. For example, when machine language translation is involved, audio cues can be used to indicate degree of certainty in the translation. A background hum might indicate certainty of translation, with higher pitches indicating more certainty and lower pitches indicating less. Another option is to have the pitch of the voice change to indicate that the certainty of the translation. Note that this may be usefully employed in an audio to audio transform, with voice recognition in the middle, or a text to speech plus language transform. Another example would be in the use of speaker identification to identfiy the speaker leaving a voice mail. The background tone can indicate the degree of certainty in the identification. Similar methods can be used to highlight passages in text as to degree of certainty, when for instance the text was obtained through voice recognition. Another example, in a text to speech system an audio cue could be used to indicate the color of the text (which may indicate the degree of importance, a change in topic, and etc.); the background hum or voice as described above could be applied in this case with the pitch indicating the level of importance, a different topic, or more simply a change in color.

Customization may be provided with the use of a stylesheet. Customizations may include the pitch of the tone(s), or the desired indicator.

Selectable Mixed Background Sound for Voice Messaging System

Description of the Problem:

Face to face communication between people involves many parallel communication paths. We derive information from body language, from words, from intonation, from facial expressions, from the distance between our bodies. Distance communication generally involves only a few of these paths, with users trying to overcome the limitations so imposed.

Our invention, selectable mixed background sound for voice messaging systems, is a system and method to provide additional context during audio messages.

Description of the Invention:

Audio only messages: In another embodiment, we associate an audio emotional cue with an audio message. In this embodiment, the audio file is selected by the speaker to be mixed with the message, or inserted in the message directly without transformation. The file selected represents the context which the user wishes to convey. For example, for an angry message, the user may select quiet rolling thunder as a background. The user can select this effect before the message, during the message, or after the message is recorded with appropriate DTMF tones on the telephone keypad . This can also be done for parts of the message, as delineated with KAS tones (see Recording and Receiving Voice Mail with freeform bookmarks).

User selected audio background: In this embodiment, the speaker selects the audio background as part of the message being left. For example, the speaker may select from a number of offered backgrounds (e.g., "top 40"). The music is mixed with the message, as the other audio cues above. In an alternate embodiment, the speaker's telephone client receives the selection request and communicates it to the voice mail system. If the speaker has unique or favorite music (for example as is used to provide ringing tone on a cell phone), and wishes to have this familiar identification (e.g., a speaker's "theme song") as part of the message being left, the telephone can communicate the music, or identify the music to the receiving voice mail system.

Note that this embodiment enables a business model of merchandizing play out of popular music, via a subscription, or a pay per use of the music. In this model, it is expected that the speaker would pay for the music, as the receiver has no opportunity to accept or decline. This is consistent with the Calling Party Pays model standard in telephony. Again, the music may be transmitted from the phone, identified from the phone, or supplied by the voicemail system from a control indicator sent by the phone.

REDACTED

Figure 3: Leaving a message with context

Attachment Converted: "C:\Eudora\attach\LvMsg1.PRZ"

Attachment Converted: "C:\Eudora\attach\playvm1.prz"

Attachment Converted: "C:\Eudora\attach\AudioSegments1.PRZ"

Attachment Converted: "C:\Eudora\attach\msgctxt6.prz"

Exhibit I

To: "Marcia L. Doubet" <mld@mindspring.com>
Subject: *IBM Confidential: Fw: RSW9-2000-0128 background music
X-Mailer: Lotus Notes Release 7.0 HF242 April 21, 2006
From: Renee Kovales <rkovales@us.ibm.com>
Date: Fri, 12 Oct 2007 11:41:01 -0400
X-MIMETrack: Serialize by Router on D03NM118/03/M/IBM(Release 8.0|August 02, 2007) at
10/12/2007
 09:41:03,
        Serialize complete at 10/12/2007 09:41:03
X-ELNK-Received-Info: spv=0;
X-ELNK-AV: 0
X-ELNK-Info: sbv=0; sbrc=.0; sbf=00; sbw=000;

Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522

----- Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:42 AM -----
Marcia Doubet/Raleigh/Contr/IBM

12/14/2000 05:58 PM

Renee Kovales/Raleigh/IBM@IBMUS

To

cc
Subject

*IBM Confidential: RSW9-2000-0128 background music

Hi! I've finished reading the final disclosure.

REDACTED

For selecting an audio background, you have 3 embodiments:
1) for the entire message
2) for parts of the message
3) announcement of the speaker (using his theme); could come at the end, or at the beginning

REDACTED

-- also, there are the choices of select before, during, or after speaking the message

For how the selecting process works, again 3 embodiments:
1) transmit the music from the phone
2) transmit an identification of the music from the phone
3) voice mail system sends a selection list to the phone, caller selects one & sends it back

REDACTED

That's it for now. I'll be on vacation from 12/22 through 12/27 but will be checking my mail at other times. Regards - Marcia

Exhibit J

To: "Marcia L. Doubet" <mld@mindspring.com>
Subject: *IBM Confidential: Fw: Re: RSW9-2000-0128 background music
X-Mailer: Lotus Notes Release 7.0 HF242 April 21, 2006
From: Renee Kovales <rkovales@us.ibm.com>
Date: Fri, 12 Oct 2007 09:42:49 -0600
X-MIMETrack: Serialize by Router on D03NM118/03/M/IBM(Release 8.0|August 02, 2007) at 10/12/2007
  09:42:50
X-ELNK-AV: 0
X-ELNK-Info: sbv=0; sbrc=.0; sbf=00; sbw=000;

Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522

---- Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:43 AM ----
Renee Kovales/Raleigh/IBM

12/28/2000 02:50 PM

	To
Marcia Doubet/Raleigh/Contr/IBM	
	cc
Edie Stern/Fort Lauderdale/IBM@IBMUS, Barry Willner/Watson/IBM@IBMUS	
	Subject
*IBM Confidential: Re: *IBM Confidential: RSW9-2000-0128 background music<u>Link</u>	

Hi Marcia,

Here are a couple of the charts. These charts show how a caller leaves a msg with a background when the voice mail system is doing all of the work (i.e., the voice mail system prompts for the background and controls the background). A couple of items I'm not sure how to clarify in the charts (or if clarification is required):
    * All of the charts have the words " Message recording starts". The voice mail system is not recording the sound of the DTMF tone for the user to hear; it is storing the DTMF tones for further processing.
    * In the data structure I showed the voice mail system storing the voice msg separately from the background. But, the system could store the mix of the msg and background (I didn't show this). I think that from a storage standpoint it would be preferable to store the msg and the background separately and mix during playback, but that may have some performance implications (I don't know).
    * If the caller does not select a background for a segment, the background selection is none.
    * If the caller presses * to select a new background and has already selected a background, the most recent selection will be stored.
    * On figures 5 and 6, the caller can select a background at any time. Given this, the caller is able to select a background prior to speaking, and is not required to speak after the selection. If the caller does not speak at all, then I would think that segment would not be stored or if the caller did not leave any message, the voice system would simply store the fact that a msg was left from extension xyz (similar to the voice mail system at our site).

Let me know what you think about these. I'll work on the other charts for this on Friday. Do I need a chart showing the playback?

Renee

Renee Kovales
Research Triangle Park, NC
(919) 254-4522, t/l 444-4522

Marcia Doubet

12/14/00 05:58 PM

    To: Renee Kovales/Raleigh/IBM@IBMUS
    cc:

From: Marcia Doubet/Raleigh/Contr/IBM@ibmus
Subject: *IBM Confidential: RSW9-2000-0128 background music

Hi! I've finished reading the final disclosure.

REDACTED

For selecting an audio background, you have 3 embodiments:
1) for the entire message
2) for parts of the message
3) announcement of the speaker (using his theme); could come at the end, or at the beginning

REDACTED

-- also, there are the choices of select before, during, or after speaking the message

For how the selecting process works, again 3 embodiments:
1) transmit the music from the phone
2) transmit an identification of the music from the phone
3) voice mail system sends a selection list to the phone, caller selects one & sends it back

REDACTED

That's it for now. I'll be on vacation from 12/22 through 12/27 but will be checking my mail at other times. Regards - Marcia

Attachment Converted: "C:\Eudora\attach\msgctxt7.prz"

Exhibit K

```
To: "Marcia L. Doubet" <mld@mindspring.com>
Subject: Fw: RSW9-2000-0128 background music
X-Mailer: Lotus Notes Release 7.0 HF242 April 21, 2006
From: Renee Kovales <rkovales@us.ibm.com>
Date: Fri, 12 Oct 2007 09:45:16 -0600
X-MIMETrack: Serialize by Router on D03NM118/03/M/IBM(Release 8.0|August 02, 2007) at
10/12/2007
  09:45:18
X-ELNK-AV: 0
X-ELNK-Info: sbv=0; sbrc=.0; sbf=00; sbw=000;
```

```
Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522
```

---- Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:46 AM ----
Renee Kovales/Raleigh/IBM

12/29/2000 01:51 PM

Marcia Doubet/Raleigh/Contr/IBM@ibmus

Edie Stern/Fort Lauderdale/IBM@IBMUS, Barry Willner/Watson/IBM@IBMUS

Re: RSW9-2000-0128 background music

	To
	cc
	Subject

Hi Marcia,

The following chart shows a caller leaving a music/audio selection in a message (not background sound). Note that the caller could leave one or more selections without any spoken message. Additionally, it is possible to mix this function with the selectable background function (sent you some charts on this yesterday). The background and the selected music/audio would not be playing at the same time. To provide this combined function the system could have a menu system for these types of services so that when the caller presses * the system prompts for "Insert an audio file" or "Select background". And/or the person could press *1 for insert audio file or *2 for select background and bypass the first level of menus (ideally they could bypass all levels and key in *2156 for background selection 156). Current voice mail systems have * types of functions to listen to the message you just recorded, and etc. I did not do a chart on this but can if you think we need one. Additionally, the code structure that you might use to do this would change as well - I put that in this attachment as well.

```
I haven't completed everything you listed in your note, but will send you updates as I do.
Let me know if you have any questions or comments.
```

Renee

```
Renee Kovales
Research Triangle Park, NC
(919) 254-4522, t/l 444-4522
```

```
Attachment Converted: "C:\Eudora\attach\msgctxt22.prz"
```

Exhibit L

To: "Marcia L. Doubet" <mld@mindspring.com>
Subject: Fw: RSW9-2000-0128 background music
X-Mailer: Lotus Notes Release 7.0 HF242 April 21, 2006
From: Renee Kovales <rkovales@us.ibm.com>
Date: Fri, 12 Oct 2007 09:48:31 -0600
X-MIMETrack: Serialize by Router on D03NM118/03/M/IBM(Release 8.0|August 02, 2007) at
10/12/2007
 09:48:33
X-ELNK-AV: 0
X-ELNK-Info: sbv=0; sbrc=.0; sbf=00; sbw=000;

Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522

----- Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:49 AM -----
Renee Kovales/Raleigh/IBM

12/29/2000 04:37 PM

	To
Marcia Doubet/Raleigh/Contr/IBM@ibmus	
	cc
Edie Stern/Fort Lauderdale/IBM@IBMUS, Barry Willner/Watson/IBM@IBMUS	
	Subject
Re: Re: RSW9-2000-0128 background music	

Hi Marcia,

Here is the next part:

Transmitting the music from the calling phone:

The calling phone would need:
* storage media for the audio selections (could be memory, FLASH, or some other removable storage)
* Pre-programmed buttons
* way to download the audio. Could do this over the phone line or could have a connection such as a USB connection, and then hook up to the computer to download, or could have removable preprogrammed media.
* capability for caller to hear the audio as well (this could be optional).

Here are some charts describing the background selection:

Note that if the caller wanted to leave an entire audio file, he would have to listen to it as well since the remote side is only recording. I guess you could design a phone to keep the connection alive eventhough you've hung up (similar to a hold button on an office phone), play the audio file you've selected, and then automatically disconnects when it is done. Not sure if we want to include this. Edie, Barry, any thoughts?

REDACTED

Renee

Renee Kovales
Research Triangle Park, NC
(919) 254-4522, t/l 444-4522
Attachment Converted: "C:\Eudora\attach\msgctxt33.prz"

Exhibit M

Importance: Normal
Subject: Re: RSW9-2000-0126 through -0128
To: "Marcia L. Doubet" <mld@mindspring.com>
X-Mailer: Lotus Notes Release 5.0 March 30, 1999
From: "Jim Mathewson II" <jmmii@us.ibm.com>
Date: Mon, 8 Jan 2001 09:05:09 -0500
X-MIMETrack: Serialize by Router on D04NM200/04/M/IBM(Release 5.0.3 (Intl)|21 March 2000) at
 01/08/2001 09:05:17 AM

REDACTED

"Marcia L. Doubet" <mld@mindspring.com> on 01/03/2001 04:16:40 PM

To: Renee Kovales/Raleigh/IBM@IBMUS, Edie Stern/Fort
       Lauderdale/IBM@IBMUS, Barry Willner/Watson/IBM@IBMUS, Jim Mathewson
       II/Raleigh/IBM@IBMUS
cc:
Subject: RSW9-2000-0126 through -0128

Hi, Everyone - I will be starting to write up these applications in the
next couple of days. We have a Jan. 31st due date. My plan is to have a
first draft of one of them ready to send to you by Monday, Jan. 8th, and
first drafts of the other 2 to follow during that week. I know that some
of you will be gone that week, so we'll need to work around your schedules.
 I would appreciate it if you would send me a return e-mail setting out
your availability during January.

Thanks very much for all the info you supplied, Renee! Regards - Marcia
----
Marcia Doubet
phone and fax: (919) 557-3827

Exhibit N

To: "Marcia L. Doubet" <mld@mindspring.com>
Subject: *IBM Confidential: Fw: RSW9-2000-0128 first draft
X-Mailer: Lotus Notes Release 7.0 HF242 April 21, 2006
From: Renee Kovales <rkovales@us.ibm.com>
Date: Fri, 12 Oct 2007 11:49:39 -0400
X-MIMETrack: Serialize by Router on D03NM118/03/M/IBM(Release 8.0|August 02, 2007) at
10/12/2007
 09:49:41,
        Serialize complete at 10/12/2007 09:49:41
X-ELNK-Received-Info: spv=0;
X-ELNK-AV: 0
X-ELNK-Info: sbv=0; sbrc=.0; sbf=00; sbw=000;

Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522

---- Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:51 AM ----
Edie Stern/Fort Lauderdale/IBM

01/10/2001 06:37 PM

Marcia Doubet/Raleigh/Contr/IBM   To

Barry Willner/Watson/IBM, Renee Kovales/Raleigh/IBM   cc

Re: *IBM Confidential: RSW9-2000-0128 first draftLink   Subject

Marcia,

First set of markups (I made it to page 14 or so). Will pick up from there and send more tomorrow.

Cheers...Edie

Edith H. Stern
Manager, Business Integration Technologies, IBM Research
Member of the IBM Academy of Technology
Phone: 914 784-7275, TL 863-7275, Fax: 914 784-6032

To: Renee Kovales/Raleigh/IBM@IBMUS, Edie Stern/Fort Lauderdale/IBM@IBMUS, Barry Willner/Watson/IBM@IBMUS
cc:
From: Marcia Doubet/Raleigh/Contr/IBM@ibmus
Subject: *IBM Confidential: RSW9-2000-0128 first draft

Hi, everyone! Here's the first draft of your application on selectable sounds in voicemail.

REDACTED

These inventions are supposed to be finished by Jan. 31st, as I mentioned earlier. We have plenty of time, but we do need to make good progress. So, I'd like to get your input on this no later than Monday, 1/15. ..

REDACTED

Regards - Marcia (919-557-3827)

RSW9-2000-0128EHS.lwp has been removed from this note on 20 June 2001 by Renee Kovales

Exhibit O

Marcia Doubet
01/17/2001 12:36 PM

To: Edie Stern/Fort Lauderdale/IBM@IBMUS
cc: Renee Kovales/Raleigh/IBM@IBMUS, Barry Willner/Watson/IBM@IBMUS
From: Marcia Doubet/Raleigh/Contr/IBM@ibmus
Subject: *IBM Confidential: Re: RSW9-2000-0128 second draft
Importance: Normal

Hi, Edie - You raise some good points. I suggest we

REDACTED

Marcia - comment on the first claim

We claim:
1.   A method of enhancing voice mail messages, comprising steps of:

REDACTED

Exhibit P

Marcia Doubet
01/22/2001 03:46 PM

To: Edie Stern/Fort Lauderdale/IBM@IBMUS
cc:
From: Marcia Doubet/Raleigh/Contr/IBM@ibmus
Subject: Re: claims on 128
Importance: Normal

Hi, Edie - I plan to send revised claims with the 3rd draft, since I had to move on to the other applications for now. How about if you skim through the ones that are there to see if any topics are left uncovered that you would like added? I know I forgot to add claims for the phone conversation mode. Other than that, I don't know of anything. It will be late tomorrow or Wed. before I get back to -0128. Thanks for your input. Regards - Marcia

Exhibit Q

To: "Marcia L. Doubet" <mld@mindspring.com>
Subject: Fw: RSW9-2000-0128 final draft
X-Mailer: Lotus Notes Release 7.0 HF242 April 21, 2006
From: Renee Kovales <rkovales@us.ibm.com>
Date: Fri, 12 Oct 2007 11:47:05 -0400
X-MIMETrack: Serialize by Router on D03NM118/03/M/IBM(Release 8.0|August 02, 2007) at
10/12/2007
 09:47:07,
        Serialize complete at 10/12/2007 09:47:07
X-ELNK-Received-Info: spv=0;
X-ELNK-AV: 0
X-ELNK-Info: sbv=0; sbrc=.0; sbf=00; sbw=000;

Renee Kovales
Research Triangle Park, NC 27709
(919) 254-4522, t/l 444-4522

----- Forwarded by Renee Kovales/Raleigh/IBM on 10/12/2007 11:37 AM -----
Marcia Doubet/Raleigh/Contr/IBM

01/31/2001 03:19 AM

Renee Kovales/Raleigh/IBM@IBMUS, Edie Stern/Fort Lauderdale/IBM@IBMUS, Barry Willner/Watson/IBM@IBMUS	To
Jeanine Ray/Raleigh/IBM@IBMUS	cc
RSW9-2000-0128 final draft	Subject

Hi - Attached is the final draft of this application. Changes are limited to pages 50 & 52 (except for the claim renumbering, which applies to pages 52 onward and is not marked). I've addressed Edie's final comments as follows:

REDACTED

I need a note for my files saying you've approved it. Thanks - Marcia
[attachment "RSW9-2000-0128.lwp" deleted by Renee Kovales/Raleigh/IBM]

Exhibit R

LAW OFFICES OF MARCIA L. DOUBET
5228 WESTMINSTER LANE
FUQUAY-VARINA, NC   27526-9062
PHONE: (919) 557-3827
FAX: (919) 557-3827
E-MAIL: mld@mindspring.com

January 31, 2001

Ms. Jeanine Ray-Yarletts, Attorney
IBM Corporation
Dept. T81B/Bldg. 503
P. O. Box 12195
Research Triangle Park, NC 27709

RE: Patent Application - docket number RSW920000128US1
       Prepared for IBM Attorney

Jeanine,

I have completed the application for the invention titled "Selectable Audio and Mixed Background Sound for Voice Messaging System", by Renee Kovales et al. and having docket number RSW920000128US1. Approval has been received from the inventors today.

Enclosed is a printed copy of the Application, and a diskette containing the WordPerfect 9 source material (file "rsw9-2000-0128.wpd") and a Freelance drawings file ("rsw9-2000-0128.prz").

REDACTED

Please ensure that this application is filed on the same day as related applications RSW920000126US1 and RSW920000127US1.

Best regards,

Marcia L. Doubet, Esq.
Registration Number 40,999